REMARKS AND ARGUMENT

AMENDMENTS ADDRESSING CLAIM INFORMALITIES:

The Applicant has amended original claims of the application correcting an inadvertent MS Word editing gaff resulting a numbering of steps of method claims 1 – 3, 5, 7, 8, & 13 implying the existence of preceding steps, objected to by Examiner. The inadvertent period noted in original claim 7 has also been eliminated.

Dependant claims 4, 6 and 14 also have been amended to precisely define the multiplication factor eliminating the 'such as' phrase rendering the previously recited limitation indefinite as observed by Examiner Hadidi.

ADDRESSING REJECTIONS OF CLAIMS 5,6,13 & 14 PURSUANT 35 U.S.C. §103:

Examiner Hadidi cites the teachings of *Advanced Animation and Rendering Techniques,* Alan H. Watt Section 3.3.3 Bézier curves; differentiation, at pages 75 & 76 including figure 3.11, published in 1992 by the ACM Press, a division of the Association of Computing Machinery, Inc. in view of the teachings of an article entitled *From Conics to NURBS: A Tutorial Survey,* Gerald **Farin**, also published in 1992 by the IEEE in Section IEEE Computer Graphics and Applications.

However the references relied upon by the Examiner do not established a *prima facie* case of obviousness under 35 USC § 103.

Under *Graham v. John Deere Co.* (1966) 383 U.S. 1, 148 USPQ 459 the requisite factual determinations for application of the obviousness criteria under 35 USC § 103 are as follows:

1. The scope and content of the prior art;

2. The **differences** between the prior art and the claims at issue;

3. The level of ordinary skill in the pertinent art; and

4. Secondary considerations, if any, of non-obviousness, such as long felt but unsolved need.

[See also *In re Dembiczak et al* (Fed.Cir. 1999) 1999 WL 246572, *3, 50 U.S.P.Q.2d 1614; *In re Brouwer,* (C.A.Fed. 1996) 1446 77 F.3d 422, 425 & *In re Bond,* (C.A.Fed. 1990), 910 F.2d 831, 834, 15 U.S.P.Q.2d

1566; & *In Re Beasley*, 04-1225 (Fed. Cir. 2004) relative to a necessity for citation of relevant, identifiable sources of information justifying statements made by an Examiner.]

Watt (supra) notes functions Q(0), & Q(1) are first derivatives of Bézier curve **Q(u)** of degree n at endpoints p_0 & p_3 that express tangent vectors at the endpoints p_0 & p_3 of the curve and that these two points and two other points p_1 & p_2, a total of 4 points, can indirectly be used to specify the <u>magnitude</u> <u>and</u> <u>orientation</u> of the **of the tangent vectors to the curve at those respective endpoints.**

In contrast, amended Claims 5 & 13 each describes a computer-implemented method for constructing a curve by selecting endpoints a_0 & a_1 and a start tangent *direction* e_0 where the end tangent direction e_1 is calculated. Parameters expressing magnitude of the respective endpoint tangent vectors are not required, nor is it necessary to specify the end tangent direction.

Farin (supra) teaches at pages 78 & 79 and Figure 1 of his article, that points b_i correspond to a **control polygon** of a conic **c** where number w_i are weights of the corresponding **control polygon vertices.** In the next section entitle 'WEIGHT POINTS' **Farin** defines weight points as two points q_0 & q_1 on chords b_0,b_1 and b_1,b_2 (shown and described as polygon legs) that prescribe the shoulder tangent of a curve. [See also Specification page 3, lines 8-12 of the Application] **Farin** explains that instead of prescribing *weights* of a conic, that is more useful to prescribe the weight points, or "equivalently the shoulder tangent" of the curve to be constructed.

In contrast, in amended Claims 5 & 13 Applicant's *weight* w is the proportion between the distance Dq between of the peak point from the center point q of the chord between the start and end points, a_0, a_1 and the distance D_r from the peak point the intersection point r of the rays extending in the end tangent directions e_0,e_1. [See Specification p. 10, l. 16 – p.11, l. 4] In other words, a *weight* in the Applicant's system determines where, on a centerline segment connecting between points q and r, the peak or shoulder point of a curve is located. [See Specification p. 14, ll. 1 – 5, and p. 15, ll. 9 – 16.]

The Examiner in his rejection of original claims 5 & 13 of the application based upon **Watt** and **Farin** asserts that the weight points described by **Farin** defines the *weight* of the curve shown in Fig.1. Nowhere does the Examiner provide any explanation of how he arrived at that conclusion other than by

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adopting Applicant's insight in defining *weight* for her invented computer implemented curve drawing tools for locating the peak/shoulder point of a curve on a "centerline segment" connecting between the center point of the chord connecting between the end points of a curve and the intersection point r of rays extending in the start and end point tangent directions, i.e., the control point b_1 of **Farin**.

5   The Examiner then observes that it would have been obvious for one skilled in the art of making computer implemented curve construction tools to modify **Watt** to somehow incorporate the "computerized weight computations of **Farin,** because **Farin's** weight computations allow for non-compute intensive curve changes." The Examiner has resorted to forbidden hindsight in his rejection analysis.

10   In particular, as pointed out by Judge Clevenger, speaking for the Federal Circuit Court of Appeals in *In re Dembiczak* (Fed. Cir. 1999) 175 F.3d 994, 999 50 U.S.P.Q.2d 1614:

> "Our case law makes clear that the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references. See, e.g., *C.R. Bard, Inc. v. M3 Sys., Inc.,* 157 F.3d 1340, 1352, 48 USPQ2d 1225, 1232 (Fed.Cir.1998) (describing "teaching or suggestion or motivation [to combine]" as an "essential evidentiary component of an obviousness holding"); *In re Rouffet,* 149 F.3d 1350, 1359, 47 USPQ2d 1453, 1459 (Fed.Cir.1998) ("the Board must identify specifically ... the reasons one of ordinary skill in the art would have been motivated to select the references and combine them"); *In re Fritch,* 972 F.2d 1260, 1265, 23 USPQ2d 1780, 1783 (Fed.Cir.1992) (examiner can satisfy burden of obviousness in light of combination "only by showing some objective teaching [leading to the combination]"); *In re Fine,* 837 F.2d 1071, 1075, 5 USPQ2d 1596, 1600 (Fed.Cir.1988) (evidence of teaching or suggestion "essential" to avoid hindsight); *Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.,* 776 F.2d 281, 297, 227 USPQ 657, 667 (Fed.Cir.1985) (district court's conclusion of obviousness was error when it "did not elucidate any factual teachings, suggestions or incentives from this prior art that showed the propriety of combination"). See also *Graham,* 383 U.S. at 18, 86 S.Ct. 684, 15 L.Ed.2d 545, 148 USPQ at 467 ("strict observance" of factual predicates to obviousness conclusion required)."

> "Combining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability--the essence of hindsight. See, e.g., *Interconnect Planning Corp. v. Feil,* 774 F.2d 1132, 1138, 227 USPQ 543, 547 (Fed.Cir.1985) ("The invention must be viewed not with the blueprint drawn by the inventor, but in the state of the art that existed at the time.")."

Nowhere in either **Watt** or **Farin** is there any suggestion or teaching indicating the insight of

35 Applicant in specifying a weight as the proportion of the distance of the peak point from the center point of

the chord between the start and end points of a curve to and the distance from the peak point to the intersection point of rays extending in the start end point tangent directions, to, in the words of **Farin**, resolve 'the problem of a weight tending to zero and a control point tending to infinity. [See page 81.]

In addition to the reasons state above, the Examiners rejections of dependant claims 6 and 14 can not stand because, while **Farin** recognizes the problem of his control point b_1 going to infinity when the endpoint tangents are parallel, and uses a cosine function as a weight, he uses the angle between the start point tangent and the chord between the start and end point at control point b_0. [See CONTROL VECTORS AT PAGES 80-81

In contrast dependant claims 6 & 14 as amended, of Applicant's system, a weight w is calculated from a fixed arbitrarily defined positive number v, multiplied by $\cos(\alpha/2)$, where α is an angle between the start and end tangent directions e_0, e_1 extending from a common point, and the constructed curve converges to limit as α approaches 180°.

CONCLUSION

Computer implemented curve drawing tools have considerable utility both today and in future eras of evolving digital construction and expression of graphic two dimensional images. The Applicant has amended her claims to more explicitly reference that utility.
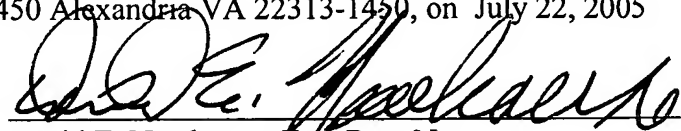
In amending the claims of the Application, the Applicant also has addressed and corrected the typos and word processing errors noted by the Examiner. The amendments to claims 6 & 14 also make definite that subject matter deemed indefinite because of the phrase "such as."

Further, as argued above the Examiners rejections of claims 5, 6, 13 &14 pursuant 35 U.S.C. § 103 stem from impermissible hindsight, in that it does not rely on any evidence of a suggestion, teaching, or motivation, but rather simply takes the inventor's disclosure as a blueprint for piecing together prior art to defeat patentability--the essence of hindsight. See, e.g., *Interconnect Planning Corp. v. Feil*, 774 F.2d 1132, 1138, 227 USPQ 543, 547 (Fed.Cir.1985); and *In Re Beasley*, 04-1225 (Fed. Cir. 2004).

Finally, Applicant adds new claim 15 describing a curve drawing tool for constructing simple point-point curves by selecting the start point, end point, peak point, and weight w.

Accordingly, the Applicant respectfully submits that her application as presently amended is in a condition for allowance and requests a Notice of Allowance.

I hereby certify that this Petition together with the Applicant's Response (Paper No. 6).in San Mateo, Ca., postage prepaid, with the First Class mail in an envelope addressed to: MAIL STOP

5   AMENDMENT, Commissioner of Patents P.O. Box 1450 Alexandria VA 22313-1450, on July 22, 2005

David E. Newhouse, Esq. Reg. No.
Attorney For Applicant Brigit Ananya